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U. S. DEPARTMENT OF AGRICULTURE  
Rural Electrification Administration

# A REPORT ON THE REA TELEPHONE PROGRAM

Remarks of Norman M. Clapp, Administrator,  
Rural Electrification Administration, Before  
the United States Independent Telephone  
Association, October 4, 1966, Chicago, Illinois



For several years I have been coming to these meetings, taking advantage of them--at your kind invitation--to discuss a wide variety of interests we share in the field of rural telephony. I am pleased and honored to be here again, at an important meeting in an important year--in the development of your telephone systems and

in the development of the rural telephone program.

I recall that when I first appeared before you as REA Administrator in Chicago in 1961, I spoke of the need to work together, of the critical times we were facing, and of the responsibility shared by all telephone borrowers in expanding rural telephone service on an area coverage basis.

## Area Coverage Moves Ahead

While indeed the critical times remain with us, we have accomplished much by working together for the betterment of rural telephony. We continue to face the job of full area coverage, with about 20 percent of our farms still without any kind of telephone service, or an estimated 3.5 million rural housing units, both farm and nonfarm, still without this important form of communications.

An illustration of what one borrower did in extending area coverage telephone service in thinly settled areas is the experience of the Big Bend Telephone Company of Alpine, Texas.

This company obtained an REA loan in 1964 to construct 2,538 miles of line in parts of seven counties in southwest Texas to serve 679 subscribers. This amounted to a density of approximately one subscriber for each four miles of line. The company's six exchanges, serving an area of approximately 20,000 square miles, were placed in operation during the last fiscal year. Costs per subscriber were set at about \$2,900, but the project will be feasible because operators of large ranches in the area were willing to pay a rate of \$18 a month for 4-party rural service.

This is hardly a typical example, but I cite it because it shows not only the handicaps encountered in providing telephone service to thin rural areas but also the intensity of the need and desire for it, even at the rate required in this instance.

Overall, the REA-financed rural telephone systems are extending service to new subscribers at the rate of about 100,000 per year.

## Borrowers Now Total 855

We have been making progress in other ways. During the fiscal year just ended, we added 5 cooperatives and 2 commercial companies to bring the total number of telephone borrowers to 855--625 commercial companies and 230 cooperatives.

The total investment in telephone plant of these REA borrowers amounted to \$1,167,000,000 as of December 31, 1965. This represents an increase of roughly \$110 million over the previous year. The plant included 460,000 route miles of line and 4,165 central offices serving more than 1.7 million rural subscribers.

Revenues of REA telephone borrowers were \$187 million, up nearly \$18.5 million in 1965 over the previous year. By the year's end, borrower

assets had gained \$90.1 million over December 31, 1964. Net worth of all REA telephone borrowers climbed from \$112.3 million to \$133.3 million in the 12-month period, so that their net worth amounted to 12.2 percent of total assets as of January 1, 1966.

These are indices of improvement and progress which promise a solid foundation for further area coverage and upgrading, if the technical development of the industry and adequate financing continue to be available to you.

REA's interest in the technical side of rural telephony continues to be keen and significant.

For some years, REA has been in the forefront of new developments in telephone engineering, system design, standards and specifications for new equipment and new materials which promise improved or less expensive facilities to serve rural subscribers.

We will continue to concentrate on this because technical assistance as well as low-cost financing is necessary to offset the handicaps of providing service in rural territory where subscribers are scattered, where pockets of poverty persist, or where terrain is unfavorable.

Continued reduction in construction and maintenance costs is essential if borrower

systems are going to move closer to REA's objective of telephone service for rural people on an area coverage basis that is comparable in quality and rates to what people in adjacent cities enjoy.

## Construction Costs Drop

The average cost of construction for outside plant dropped to \$90 per circuit mile for REA borrowers last year--down from \$241 just 10 years ago. While our engineers are hopeful of even further reductions, we know that these are becoming increasingly difficult to obtain.

Buried plant has been chiefly responsible for these savings and for higher standards of performance than our borrowers found possible with conventional aerial plant. Currently about 85 percent of all new REA-financed line and cable constructed by contract is going underground. An even higher percentage is anticipated in the future, because new cable design and plowing equipment now permit wider use of buried plant in rocky terrain. Our engineers are testing moisture blocks, pressurized systems, underground splicing units, plastic duct conduit, and other techniques which will undoubtedly tip the balance still further in favor of buried plant.



Another significant breakthrough for a new pattern of growth in service in rural areas is the development, under REA guidance, of a new family of subscriber carrier systems, some of which are already on the REA list of acceptable materials. The new equipment is available at substantially less than the cost of what previously had been available, thanks to new technology in transistorized components, printed circuits, simplified signaling techniques, and assembly and packaging. Included are 1-channel systems where the cost is as low as \$225 per channel.

This new subscriber carrier is different from older types which were offshoots of trunk carrier. It drops channels individually where needed, does not require any application engineering, and does not require alignment. It can be installed by unskilled workers and is easy to check and test.

The telephone industry--and I include the small independent systems--is adopting a whole new generation of equipment undreamed of a few years back. One of our borrowers in Minnesota has just completed an installation with common mode operation. CMO is probably familiar to just about everyone here, but we think it rates special study and recognition for cost re-

ductions and service improvement on rural lines. When required for signaling and transmission on long lines, it has been standard practice to install one long-line adapter and one voice repeater on each subscriber loop. CMO places the repeater and adapter inside the central office switching equipment, thereby making it possible to share them on a common basis with two or more subscriber loops. This reduces the number of required repeaters and adapters and makes possible greater use of finer gauge cable.

## Use of Copper Is Reduced

REA has a committee studying the use of fine-gauge cable and the findings look favorable for improved system design. We hope it will enable you to reduce further the use of copper, in view of the limited supply in the United States and the increased cost. We are actively seeking reductions in the use of copper in both the telephone and the electric programs. It is estimated that more than 800 short tons have been saved to date on the REA-financed systems as a result of our memoranda to borrowers on the use of substitute materials for copper, and we expect further reductions through more careful review of plans and speci-

fications for buildings and structures, by instructing field engineers and consulting engineers on new design techniques which utilize fine-gauge telephone cable, by working with manufacturers, by encouraging new sources of alternate materials, and through additional research.

There are advantages in using the finer gauges--24 gauge and even 26 gauge--irrespective of the critical copper situation. We know that the savings can be considerable. The use of the finer gauges, however, does require more precise engineering.

In this connection, REA plans two symposia in the near future, one in Washington and one in the field, for all telephone borrowers, consulting engineers, REA field engineers and others, to present in detail these new developments. We want to make sure that everyone understands fully the use and capabilities of these new devices. We want to begin to incorporate them as tools in the design of systems.

On the whole, our engineering problem is to evolve an exchange plant that will be flexible enough to meet tomorrow's growth and be economical enough to hold subscriber rates at reasonable levels. Our objectives will be in the direction of designs utilizing a maximum amount

of movable plant and a minimum of fixed plant.

Whatever we do, we must keep in mind that telephone service to be effective must be an integrated network, which really means that small companies have to meet standards set by Bell and the larger independents.

The Bell System expects to have 82 percent of its subscribers on 1-party service by 1970, with 87 percent as the goal for 1975. Complete elimination of multi-party service is the ultimate objective. This is the pace that must be met by the rest of the industry.

While REA borrowers cannot hope to match Bell's expectations, we do anticipate that by 1970 about 35 percent of the subscribers on the lines of REA-financed systems will be taking single-party service--compared with 23 percent last year. Ten years from now the figure should be 52 percent. During 1965, one out of every six telephone loans made by REA included one or more exchanges for all-single-party service. Since October 1963, we have made 75 loans for this purpose, converting 150 exchanges to all-single-party service.

## **Financing Is Crucial Issue**

The demands of meeting our area coverage commitments



and at the same time matching the pace of the industry toward upgraded service are already straining our capital resources to the limit. Looking ahead, it is clear that future financing is the crucial issue we face now in rural telephony.

In the past 15 years, REA has loaned more than \$1 billion for rural telephone purposes. As we project the needs of the rural systems in this rapidly growing industry, however, our estimates at REA are that they will require \$3 billion of new capital in the coming 15 years--three times as much as we have provided in the past 15 years.

As impressive as the annual loan authorizations of recent years are, averaging more than \$100 million per year, the annual requirement for new capital in 1975--less than 10 years from now--will reach a level of \$225 million.

With all of the pressures upon the Federal budget in these times, with the deep and growing concern of the public with the problems of public financing, the size of the national debt, rising interest rates, and tax requirements, it is our judgment, and I think yours too, that it is totally unrealistic to expect that the rapidly expanding capital needs of the rural telephone systems can be met solely

through the REA direct loan program.

It is fair and proper--and in the public interest--that the REA loan program with its favorable rate of interest be continued unimpaired for the assistance of those rural systems that must have this kind of financing to accomplish the public objectives of rural telephony. But for those systems which can accomplish those objectives with a different kind of financing at less cost to the Federal Government and with greater participation of private capital, it is fair and proper--and in the public interest--that some kind of supplemental financing be provided.

In the last fiscal year, Congress provided \$97 million in loan funds for the rural telephone program but we actually made telephone loans totaling \$101 million. This was possible due to some carry-over funds and rescissions of previous loans, in addition to the \$97 million in new authorizations.

## **Loan Backlog Reaches New High**

Congress has authorized \$117 million for the current fiscal year. This represents an increase, but that is small comfort when we consider that we carried over to the present fiscal year 286 applications



for a total of \$197 million--the highest backlog in the history of the program. I might add that on August 31, with the fiscal year only two months old, we had 309 applications on hand totaling \$234 million.

Even with the increase in loan authorizations provided by Congress for this year, the backlog alone, not to mention the applications still to be received, is about double the loans we will be able to make.

This is why enactment of the supplemental financing legislation introduced in Congress this year is so urgently needed.

This is why your active and unified support of this legislation is so vital, not only to the future effectiveness of the rural telephone program but to the future of your own telephone system as well.

The legislation we have proposed would create a Federal bank, under supervision of the Secretary of Agriculture, for the rural telephone systems. It would provide non-Federal sources of financing to supplement funds appropriated for the 2 percent loan program.

The bank would be capitalized at the outset through stock purchases by both the Federal Government and the borrowers themselves.

The Government's capital investment in the telephone bank would be made over a

15-year period, in the amount of \$20 million each year unless a lesser amount is specified in an appropriation act. This would provide a Government capital subscription to the bank of \$300 million over the 15-year period.

Borrower investment in the bank would accumulate through two devices. First of all, each borrower receiving a loan from the bank would be required to take 5 percent of it in bank stock bearing no cash dividends but eligible to earn capital credits from the bank's operations. Secondly, there would be available on a voluntary purchase basis to all eligible borrowers a special dividend-bearing class of stock, Class C stock.

With these capital resources and the added authority to borrow money in the private money market through the sale of debentures with the backup of the United States, the bank would make two kinds of loans to rural telephone systems eligible to borrow from REA under the present Act. One type of loan would be an intermediate rate loan at an interest rate reflecting the current average market yield on marketable securities of the United States having comparable maturities but not to exceed 4 percent. The other type loan would be full market rate loans at an interest rate reflecting the average rate

paid on the bank's debentures plus administrative expenses and estimated losses.

Intermediate rate loans would not be available to borrowers which are capable of paying the higher bank rate without jeopardizing their achievement of the objectives of the rural telephone program.

## **Borrower Ownership Is Ultimate Goal**

Ultimately the Federal stock in the bank would be replaced by the capital of the borrowers themselves in the same manner the Farm Credit banks have been successfully moving toward borrower ownership and control.

One great virtue of the approach to supplemental financing through such a banking device is that it affords a means of multiplying the loan potential of each Federal dollar used. For example, by mixing one interest-free Federal dollar invested in the bank's capital stock with four dollars raised by the bank in the private money market through the sale of 5 percent debentures it is possible to make available five dollars for rural telephone loans at 4 percent without loss to the bank. On this basis, \$20 million of Federal stock subscription each year would make possible \$100 million

worth of 4 percent intermediate loans for the program.

I hasten to point out two qualifying factors: First, at this moment it would appear that the bank would have to pay something more than 5 percent on the debentures it sold in the current market, and this would correspondingly reduce the total amount of 4 percent telephone loans which could be supported by the bank's capital structure. Secondly, the amount of intermediate financing provided would in reality be limited by the amount of 4 percent financing borrowers could use without jeopardizing their achievement of the purposes of the rural telephone program.

The majority of the REA-financed rural systems still need the basic 2 percent financing of REA to offset the handicaps of serving in rural areas if they are to move toward full area coverage, rates and service for rural subscribers comparable with what urban subscribers enjoy, and the financial reserves and stability which rural systems must have to meet the challenges of the future.

REA's "price-out" study of the proposed bank, based on what we regard as reasonable projections of loan needs, indicates it could provide loans totaling more than \$1.6 billion over the next 15 years, and end up with a surplus of approximately \$85 million.

Add this loan capability to the present 2 percent basic program and we have the means of meeting the new capital needs of \$3 billion expected in the next 15 years.

## **Rural Support Urgently Needed**

But enactment of legislation of this magnitude does not come to pass unless there is a deep and compelling sense of need and support for it. If that is not felt by the people who are actively associated with rural telephony and its problems, if it is not registered by the rural people whose future service depends upon it, there can be little wonder if Congress fails to show this sense of need and urgency.

The demand for additional capital by small and medium size independents serving rural areas will have to be met somehow.

It will have to be met because of the continuing need to replace worn out lines and

exchanges and station equipment; because of the need to serve an expanding population which is spilling over into the farmlands from the cities; and because of the need to install equipment to meet the demand for higher grades of service.

Meeting it successfully is the crucial challenge which faces us all--right now. Approximately 7 million Americans are now dependent upon REA-financed systems for telephone service. More millions will in the future be looking to these same or similar rural systems to serve them. Whether we can assure them that they will be able to enjoy rural service comparable to that offered by the industry generally, whether we can assure them of this measure of "full parity for all rural life" which President Johnson has set as one of the goals of the Great American Society, will be largely determined in the outcome of our quest for adequate financing.

We must not fail them.



DEPARTMENT OF AGRICULTURE  
RURAL ELECTRIFICATION ADMINISTRATION  
WASHINGTON, D.C. 20250

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